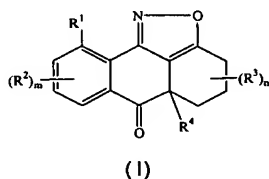


Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. **(Currently Amended)** A production process for producing a polycyclic ketone compound ~~of represented by~~ the following Formula (I):



(wherein R¹ ~~represents~~ is a hydrogen atom, a hydroxyl group, a halogen atom, a silyloxy group which may be substituted, a C₁ to C₁₀ alkoxy group which may be substituted or a C₁ to C₂₀ hydrocarbon group which may be substituted;

R² may be independent from each other and the same as or different from each other and ~~represents~~ is a halogen atom, a hydroxyl group, a cyano group, a nitro group, an amino group which may be substituted, a C₁ to C₁₀ alkoxy group which may be substituted, a C₁ to C₁₀ acyl group which may be substituted, a C₁ to C₂₀ hydrocarbon group which may be substituted or a heterocyclic group of a 5- to 7-membered ring which may be substituted or two groups of R² form a hydrocarbon group of a 4- to 6-membered ring which may be substituted together with adjacent carbon atoms;

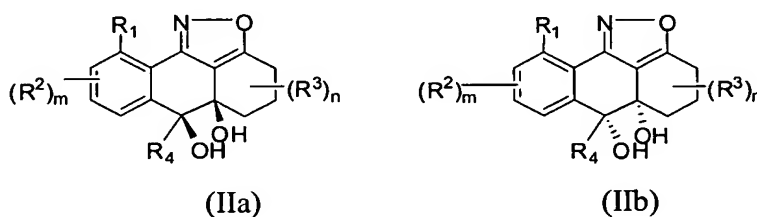
R³ may be independent from each other and the same as or different from each other and ~~represents~~ is a halogen atom, a hydroxyl group, a C₁ to C₁₀ alkoxycarbonyl group which may be substituted or a C₆ to C₂₀ hydrocarbon group which may be substituted or two groups of R³ form a hydrocarbon group of a 4- to 6-membered ring which may be substituted together with adjacent carbon atoms;

R⁴ ~~represents~~ is a hydrogen atom, a halogen atom, a cyano group, a nitro group, an amino group which may be substituted, a C₁ to C₁₀ alkoxy group which may be substituted, a

C₁ to C₁₀ acyl group which may be substituted, a C₁ to C₁₀ alkyl group which may be substituted, a phenyl group which may be substituted or a C₁ to C₂₀ hydrocarbon group which may be substituted;

m ~~represents~~ is an integer of 0 to 3; and n ~~represents~~ is an integer of 0 to 6),

wherein a compound ~~represented by~~ of the following Formula (IIa) or (IIb) is treated under an acidic condition:



(wherein R¹, R², R³, R⁴, m and n are the same as those defined in Formula (I) ~~described above~~).

2. **(Currently Amended)** The production process as described in claim 1, wherein the treatment ~~described above~~ is carried out in the presence of a catalyst.

3. **(Currently Amended)** The production process as described in claim ~~[[1]]~~ 2, wherein the catalyst ~~described above~~ is selected from Lewis acids, protonic acids and mixtures thereof.

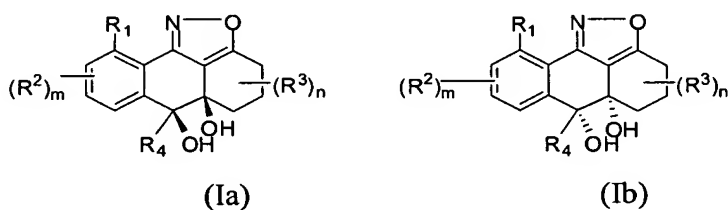
4. **(Currently Amended)** The production process as described in claim 3, wherein the protonic acid ~~described above~~ is selected from mineral acids such as ~~hydrogen chloride~~, alkanesulfonic acids, carboxylic acids and mixtures thereof.

5. **(Original)** The production process as described in claim 1, wherein the treatment is carried out at a temperature of -78 to 150°C for 0.1 to 50 hours.

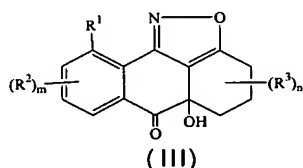
6. **(Original)** The production process as described in claim 1, wherein the treatment is carried out at a temperature of -30 to 40°C for 1 to 20 hours.

7. **(Currently Amended)** The production process as described in claim 1, wherein the treatment is carried out in the presence of a solvent which solvent described above is selected from methanol, ethanol, tetrahydrofuran, diethyl ether, dichloromethane, chloroethylene, dichloroethylene, chloroform, benzene, toluene, acetonitrile, N,N-dimethylformamide and dimethyl ketone, water, 1,4-dioxane, 1,2-dimethoxyethane and mixtures thereof.

8. **(Withdrawn)** A production process for producing a compound represented by the following Formula (IIa) or (IIb):



(wherein R^1 , R^2 , R^3 , R^4 , m and n are the same as described below) using a production process in which a compound represented by the following Formula (III):



(wherein R^1 represents a hydrogen atom, a hydroxyl group, a halogen atom, a silyloxy group which may be substituted, a C_1 to C_{10} alkoxy group which may be substituted or a C_1 to C_{20} hydrocarbon group which may be substituted;

R^2 may be independent from each other and the same as or different from each other and represents a halogen atom, a hydroxyl group, a cyano group, a nitro group, an amino group which may be substituted, a C_1 to C_{10} alkoxy group which may be substituted, a C_1 to C_{10} acyl group which may be substituted, a C_1 to C_{20} hydrocarbon group which may be substituted or a heterocyclic group of a 5- to 7-membered ring which may be substituted or two groups of R^2 form a hydrocarbon group of a 4- to 6-membered ring which may be substituted together with adjacent carbon atoms;

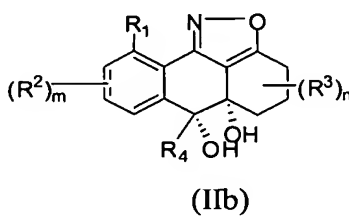
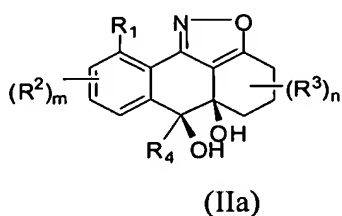
R^3 may be independent from each other and the same as or different from each other and represents a halogen atom, a hydroxyl group, a C_1 to C_{10} alkoxy carbonyl group which may be substituted or a C_6 to C_{20} hydrocarbon group which may be substituted or two groups of R^3 form a hydrocarbon group of a 4- to 6-membered ring which may be substituted together with adjacent carbon atoms;

m represents an integer of 0 to 3; and n represents an integer of 0 to 6) is treated under the presence of a compound represented by the following Formula (IV):



(wherein M represents metal, and R^4 represents a hydrogen atom, a halogen atom, a cyano group, a nitro group, an amino group which may be substituted, a C_1 to C_{10} alkoxy group which may be substituted, a C_1 to C_{10} acyl group which may be substituted, a C_1 to C_{10} alkyl group which may be substituted, a phenyl group which may be substituted or a C_1 to C_{20} hydrocarbon group which may be substituted).

9. **(Withdrawn)** The production process as described in claim 8, wherein the compound represented by the following Formula (IIa) or (IIb) is obtained in the form of a single isomer:



(wherein R^1 , R^2 , R^3 , R^4 , m and n are the same as described above).

10. **(Withdrawn)** The production process as described in claim 7, wherein the compound represented by Formula (IIa) or (IIb) (wherein R^1 , R^2 , R^3 , R^4 , m and n are the same as described above) described above is produced by treatment carried out at a temperature of -120 to 40°C for 0.01 to 5 hours.

11. **(Withdrawn)** The production process as described in claim 8, wherein the compound represented by Formula (IIa) or (IIb) described above (wherein R^1 , R^2 , R^3 , R^4 , m and n are the same as described above) is treated at a temperature of -100 to -20°C for 0.05 to 1 hour.

12. **(Withdrawn)** The production process as described in claim 8, wherein in the production of the compound represented by Formula (IIa) or (IIb) described above (wherein R^1 , R^2 , R^3 , R^4 , m and n are the same as described above), the solvent described above is selected from methanol, ethanol, tetrahydrofuran, diethyl ether, dichloromethane, chloroethylene, dichloroethylene, chloroform, benzene, toluene, acetonitrile, N,N-dimethylformamide and dimethyl ketone, water, 1,4-dioxane, 1,2-dimethoxyethane and mixtures thereof.

13. **(Currently Amended)** The production process as described in claim 1 ~~or~~ 8, wherein R^1 ~~represents~~ is a hydrogen atom, a hydroxyl group, a halogen atom, a silyloxy group which may be substituted or a C_1 to C_{10} alkoxy group which may be substituted;

R^2 may be independent from each other and the same as or different from each other and ~~represents~~ is a halogen atom, a hydroxyl group, a cyano group, a nitro group, an amino group which may be substituted, a C_1 to C_{20} hydrocarbon group which may be substituted, a C_1 to C_{10} alkoxy group which may be substituted or a C_1 to C_{10} acyl group which may be substituted or two groups of R^2 form a hydrocarbon group of a 5- to 6-membered ring which may be substituted together with adjacent carbon atoms;

R^3 may be independent from each other and the same as or different from each other and ~~represents~~ is a halogen atom, a hydroxyl group, a C_1 to C_5 alkoxycarbonyl group which may be substituted or a C_1 to C_{10} alkyl group which may be substituted or two groups of R^3 form a hydrocarbon group of a 5- to 6-membered ring which may be substituted together with adjacent carbon atoms;

R^4 ~~represents~~ is a hydrogen atom, a halogen atom, an amino group which may be substituted, a C_1 to C_{10} alkoxy group which may be substituted, a C_1 to C_{10} acyl group which may be substituted, a C_1 to C_{10} alkyl group which may be substituted, a C_1 to C_{10} alkenyl

group which may be substituted, a C₁ to C₁₀ alkynyl group which may be substituted or a phenyl group which may be substituted;

~~M represents metal;~~

m ~~represents~~ is an integer of 0 to 2; and n ~~represents~~ is an integer of 0 to 4.

14. **(Currently Amended)** The production process as described in claim 1 ~~or 8~~, wherein R¹ ~~represents~~ is a hydrogen atom, a hydroxyl group, a halogen atom, a silyloxy group which may be substituted, a C₁ to C₅ alkoxy group or a C₁ to C₅ alkoxy C₁ to C₅ alkoxy group;

R² may be independent from each other and the same as or different from each other and ~~represents~~ is a halogen atom, a hydroxyl group, a cyano group, a nitro group, an amino group which may be substituted, a C₁ to C₁₀ alkyl group which may be substituted or a C₁ to C₁₀ alkoxy group which may be substituted or two groups of R² form a hydrocarbon group of a 6-membered ring together with adjacent carbon atoms;

R³ may be independent from each other and the same as or different from each other and ~~represents~~ is a halogen atom, a hydroxyl group or a C₁ to C₁₀ alkyl group which may be substituted or two groups of R³ form a hydrocarbon group of a 6-membered ring together with adjacent carbon atoms;

R⁴ ~~represents~~ is a hydrogen atom, a halogen atom, an amino group which may be substituted, a C₁ to C₅ alkoxy group which may be substituted, a C₁ to C₅ acyl group which may be substituted, a C₁ to C₅ alkyl group which may be substituted, a C₁ to C₅ alkenyl group which may be substituted, a C₁ to C₅ alkynyl group which may be substituted or a phenyl group which may be substituted;

~~M represents lithium, magnesium, sodium, potassium or zinc;~~

m ~~represents~~ is 0 or 1; and n ~~represents~~ is an integer of 0 to 3.

15. **(Currently Amended)** The production process as described in claim 1 ~~or 8~~, wherein R¹ ~~represents is~~ is a hydroxyl group, a halogen atom, a silyloxy group which may be substituted, methoxy or methoxymethoxy;

R² may be independent from each other and the same as or different from each other and ~~represents is~~ is a halogen atom, a hydroxyl group, a cyano group, a nitro group, an amino group, a C₁ to C₃ alkyl group or a C₁ to C₃ alkoxy group which may be substituted or two groups of R² form a condensed benzene ring together with adjacent carbon atoms;

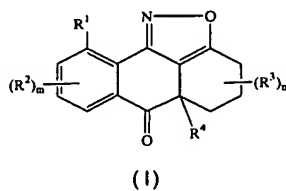
R³ may be independent from each other and the same as or different from each other and ~~represents is~~ is a halogen atom, a hydroxyl group or a C₁ to C₃ alkyl group which may be substituted or two groups of R³ form a condensed cyclohexyl ring together with adjacent carbon atoms;

R⁴ ~~represents is~~ is a C₁ to C₃ alkyl group which may be substituted, a vinyl group, a phenyl group or a tolyl group;

~~M represents lithium;~~

m ~~represents is~~ is 0 or 1; and n ~~represents is~~ is 0 or 1.

16. **(Withdrawn)** A polycyclic ketone compound represented by the following Formula (I):



(wherein R¹ represents a hydrogen atom, a hydroxyl group, a halogen atom, a silyloxy group which may be substituted, a C₁ to C₁₀ alkoxy group which may be substituted or a C₁ to C₂₀ hydrocarbon group which may be substituted;

R² may be independent from each other and the same as or different from each other and represents a halogen atom, a hydroxyl group, a cyano group, a nitro group, an amino

group which may be substituted, a C₁ to C₁₀ alkoxy group which may be substituted, a C₁ to C₁₀ acyl group which may be substituted, a C₁ to C₂₀ hydrocarbon group which may be substituted or a heterocyclic group of a 5- to 7-membered ring which may be substituted or two groups of R² form a hydrocarbon group of a 4- to 6-membered ring which may be substituted together with adjacent carbon atoms;

R³ may be independent from each other and the same as or different from each other and represents a halogen atom, a hydroxyl group, a C₁ to C₁₀ alkoxycarbonyl group which may be substituted or a C₆ to C₂₀ hydrocarbon group which may be substituted or two groups of R³ form a hydrocarbon group of a 4- to 6-membered ring which may be substituted together with adjacent carbon atoms;

R⁴ represents a hydrogen atom, a halogen atom, a cyano group, a nitro group, an amino group which may be substituted, a C₁ to C₁₀ alkoxy group which may be substituted, a C₁ to C₁₀ acyl group which may be substituted, a C₁ to C₁₀ alkyl group which may be substituted, a phenyl group which may be substituted or a C₁ to C₂₀ hydrocarbon group which may be substituted; m represents an integer of 0 to 2; and n represents an integer of 0 to 4).

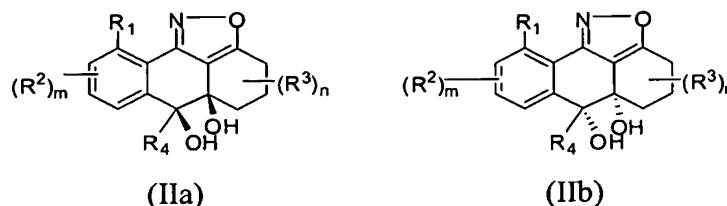
17. **(Withdrawn)** The polycyclic ketone compound as described in claim 16, wherein R¹ represents a hydrogen atom, a hydroxyl group, a halogen atom, a silyloxy group which may be substituted or a C₁ to C₁₀ alkoxy group which may be substituted; R² may be independent from each other and the same as or different from each other and represents a halogen atom, a hydroxyl group, a cyano group, a nitro group, an amino group which may be substituted, a C₁ to C₂₀ hydrocarbon group which may be substituted, a C₁ to C₁₀ alkoxy group which may be substituted or a C₁ to C₁₀ acyl group which may be substituted or two groups of R² form a hydrocarbon group of a 5- to 6-membered ring which may be substituted together with adjacent carbon atoms; R³ may be independent from each other and the same as or different from each other and represents a halogen atom, a hydroxyl group, a C₁ to C₅ alkoxycarbonyl group which may be substituted or a C₁ to C₁₀ alkyl group which may be substituted or two groups of R³ form a hydrocarbon group of a 5- to 6-membered ring which may be substituted together with adjacent carbon atoms; R⁴ represents a hydrogen atom, a halogen atom, an amino group which may be substituted, a C₁ to C₁₀ alkoxy group which may

be substituted, a C₁ to C₁₀ acyl group which may be substituted, a C₁ to C₁₀ alkyl group which may be substituted or a phenyl group which may be substituted; m represents an integer of 0 to 2; and n represents an integer of 0 to 4.

18. **(Withdrawn)** The polycyclic ketone compound as described in claim 16, wherein R¹ represents a hydrogen atom, a hydroxyl group, a halogen atom, a silyloxy group which may be substituted, a C₁ to C₅ alkoxy group or a C₁ to C₅ alkoxy C₁ to C₅ alkoxy group; R² may be independent from each other and the same as or different from each other and represents a halogen atom, a hydroxyl group, a cyano group, a nitro group, an amino group which may be substituted, a C₁ to C₁₀ alkyl group which may be substituted or a C₁ to C₁₀ alkoxy group which may be substituted or two groups of R² form a hydrocarbon group of a 6-membered ring together with adjacent carbon atoms; R³ may be independent from each other and the same as or different from each other and represents a halogen atom, a hydroxyl group or a C₁ to C₁₀ alkyl group which may be substituted or two groups of R³ form a hydrocarbon group of a 6-membered ring together with adjacent carbon atoms; R⁴ represents a hydrogen atom, a halogen atom, an amino group which may be substituted, a C₁ to C₅ alkoxy group which may be substituted, a C₁ to C₅ acyl group which may be substituted, a C₁ to C₅ alkyl group which may be substituted or a phenyl group which may be substituted; m represents 0 or 1; and n represents an integer of 0 to 3.

19. **(Withdrawn)** The polycyclic ketone compound as described in claim 16, wherein R¹ represents a hydroxyl group, a halogen atom, a silyloxy group which may be substituted, methoxy or methoxymethoxy; R² may be independent from each other and the same as or different from each other and represents a halogen atom, a hydroxyl group, a cyano group, a nitro group, an amino group or a C₁ to C₃ alkyl group or a C₁ to C₃ alkoxy group which may be substituted or two groups of R² form a condensed benzene ring together with adjacent carbon atoms; R³ may be independent from each other and the same as or different from each other and represents a halogen atom, a hydroxyl group or a C₁ to C₃ alkyl group which may be substituted or two groups of R³ form a condensed cyclohexyl ring together with adjacent carbon atoms; R⁴ represents a C₁ to C₃ alkyl group which may be substituted or a tolyl group; m represents 0 or 1; and n represents 0 or 1.

20. **(Withdrawn)** A polycyclic compound represented by the following Formula (IIa) or (IIb):



(wherein R^1 represents a hydrogen atom, a hydroxyl group, a halogen atom, a silyloxy group which may be substituted, a C_1 to C_{10} alkoxy group which may be substituted or a C_1 to C_{20} hydrocarbon group which may be substituted;

R^2 may be independent from each other and the same as or different from each other and represents a halogen atom, a hydroxyl group, a cyano group, a nitro group, an amino group which may be substituted, a C_1 to C_{10} alkoxy group which may be substituted, a C_1 to C_{10} acyl group which may be substituted, a C_1 to C_{20} hydrocarbon group which may be substituted or a heterocyclic group of a 5- to 7-membered ring which may be substituted or two groups of R^2 form a hydrocarbon group of a 4- to 6-membered ring which may be substituted together with adjacent carbon atoms;

R^3 may be independent from each other and the same as or different from each other and represents a halogen atom, a hydroxyl group, a C_1 to C_{10} alkoxycarbonyl group which may be substituted or a C_6 to C_{20} hydrocarbon group which may be substituted or two groups of R^3 form a hydrocarbon group of a 4- to 6-membered ring which may be substituted together with adjacent carbon atoms;

R^4 represents a hydrogen atom, a halogen atom, a cyano group, a nitro group, an amino group which may be substituted, a C_1 to C_{10} alkoxy group which may be substituted, a C_1 to C_{10} acyl group which may be substituted, a C_1 to C_{10} alkyl group which may be substituted, a phenyl group which may be substituted or a C_1 to C_{20} hydrocarbon group which may be substituted; m represents an integer of 0 to 2; and n represents an integer of 0 to 4).